**MITIGATION MEASURES**

There are no significant impacts; therefore, no mitigation measures are required under NEPA.

## 4.3 AIR QUALITY

Air quality impacts are indicated by changes in the concentrations of atmospheric pollutants as a result of specified actions. This section discusses impacts to air quality from site preparation and construction at the NWTC resulting from the Proposed Action, as well as impacts resulting from emissions associated with subsequent site operations. The purpose of the air quality analysis is to provide a general idea of construction and operational impacts to air quality resulting from the Proposed Action rather than to define precise emission levels and corresponding mitigation measures. Consequently, modeling was not performed to precisely calculate future emissions.

NREL has an ongoing overall Air Quality Protection program, an Indoor Air Quality program, a Particulate Emissions Control for Construction program, a Local Exhaust Ventilation program, and a wide range of other programs that directly and indirectly contribute to avoiding, minimizing and mitigating air pollution emissions and associated impacts and risks. These programs are in place and would apply to all future improvements and activities at the NWTC.

Based on proposed activities and operations, emissions resulting from new facilities and increased use of existing NWTC facilities are expected to be insignificant. Operational emissions under the Proposed Action would be intermittent and would not be expected to contribute to an exceedance of an ambient air quality standard or substantially impact regional air quality attainment status or progress.

### 4.3.1 Construction Impacts

During construction, temporary and localized increases in atmospheric concentrations of $NO_2$, CO, $SO_2$, VOCs, and PM would result from exhaust emissions of worker's vehicles, heavy construction vehicles, and other machinery, equipment and tools. Air quality impacts would result from airborne particulates (fugitive dust) arising from earthwork during site preparation and construction. New construction at the NWTC would be conducted in stages; therefore, emissions of fugitive dust would not be continuous. Under certain wind conditions, there could be a minor incremental increase in particulates detectable at the open space trailheads to the north and northwest of the NWTC during site construction. However, the impact is expected to be inconsequential because the distances between the site and trailheads would allow for substantial dispersion of the particulates before reaching trail users. Impacts at the residence located west of the NWTC would also be minor for similar reasons. Additional particulate emissions from the NWTC would contribute incrementally and insignificantly to emissions originating from the aggregate facility and other area-wide sources and for a limited duration.

### 4.3.2 Impacts from New Equipment and Operations

There would be no new major stationary sources or major modifications to existing operations associated with the Proposed Action. Emissions associated with the proposed Fuel Cell Thermal and Moisture Management Facility (heaters, coolers, humidifiers, and dryers) would consist primarily of water vapor. Other new emissions sources would be consist of natural gas

combustion devices and related dispensing facilities such as the proposed natural gas fueling station and natural gas pressure regulating station. If fuel storage tanks were installed on the site, there may be emissions associated with the tanks, depending on the volume and type of fuel stored. Consistent with State of Colorado regulations, the NREL ES&H staff would evaluate emissions associated with new emissions sources prior to their installation. The greatest aggregate amount of actual emissions currently generated at the site is 2.42 TPY of NOx, primarily in association with the operation of Hybrid Power Test Beds. This quantity of NOx emissions does not approach the 100-TPY threshold amount for Major Source designation. Emissions resulting from the sources associated with the implementation of the Proposed Action would contribute an amount that would not significantly increase the amount of pollutants that currently exist in the ambient air. The use of HAPS and related emissions are not expected to increase substantially or approach any threshold quantities that would trigger new regulatory requirements.

#### 4.3.3 Impacts of the No Action Alternative

If the Proposed Action were not implemented, incremental air quality impacts of the Proposed Action would not occur. Existing emissions from on-site operations would remain at current levels.

**MITIGATION MEASURES**

There are no significant impacts; therefore no mitigation measures are required under NEPA.

### 4.4 NOISE

The purpose of the noise analysis in this EA is to estimate and characterize construction and operational impacts resulting from the Proposed Action and the No Action Alternative. Detailed predictive noise modeling to precisely define future noise levels was not considered necessary.

Compliance with OSHA requirements for noise exposure is a site mandate, so anticipated impacts on NWTC staff would be minimized and mitigated.

#### 4.4.1 Impacts from Construction Noise

The Proposed Action would result in construction noise from heavy equipment operation, building of foundations and structures, earthwork, and trenching and utility installation. Construction would be phased resulting in associated noise that would be generated intermittently and typically during daylight hours.

Construction operations could generate temporary noise levels up to 95 dBA measured at a reference level of 50 feet from the source (NRC, 2000). These maximum construction-related noise levels would be reduced to approximately 63 dBA at the nearest residence due to reduction of noise intensity with distance. Typical average traffic noise from adjacent roadways and industrial sites would be of roughly the same magnitude, thereby masking the construction noise at off-site locations.

Construction-related noise levels are expected to be approximately 58 dBA at the nearest trailhead. This noise level is equivalent to hearing normal conversation. However, average traffic noise originating from Highways 93 and 128 is likely to be greater than 58 dBA.